

REVISED CHECKLIST OF THE VASCULAR PLANTS OF BRYCE CANYON NATIONAL PARK, UTAH

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ABSTRACT.— Prior to 1960, when the senior author wrote a dissertation on the plant ecology of the Paunsaugunt Plateau forests of Bryce Canyon National Park, relatively little plant taxonomic work had been done in the area. A checklist was prepared in 1971 that included 218 species of higher plants. During the field seasons 1978, 1979, and 1980, additional plants were collected during a second plant community study of the forests. The junior author spent the summer of 1980 at the park collecting plants in additional plant communities and organizing the herbarium collection. This checklist includes the additional species collected and updates the nomenclature of the vascular plants presently known to occur within the boundaries of Bryce Canyon National Park.

Bryce Canyon National Park occupies 35,240 acres (55.06 square miles) along the southeastern edge of the Paunsaugunt Plateau in Garfield and Kane counties in southern Utah. The elevation ranges from 2027 m (6650 ft) near the town of Tropic to 2775 m (9105 ft) at Rainbow Point. The Paunsaugunt Plateau is approximately 30 miles long by 10 miles wide, occupying a position midway between 37 degrees and 38 degrees north latitude 10 miles west of the 112th meridian. The annual precipitation at park headquarters is 16.56 inches. May and June are the driest months of the year with .94 and .60 inches of precipitation. August is the wettest month of the year with 2.35 inches precipitation, due to thunderstorms. Snowfall from November through March provides most of the annual precipitation.

The checklist includes 446 species of vascular plants known to occur within the boundaries of Bryce Canyon National Park. It should not be considered all inclusive, inasmuch as additional species will undoubtedly be discovered. It is, rather, the state of knowledge as of August 1980. The following have served as authorities of nomenclature: monocotyledons, Cronquist et al. (1977); Fabaceae, Welsh (1978); Brassicaceae, except *Erysimum*, Welsh and Reveal (1977); lower vascular plants, gymnosperms and remainder of the dicotyledons, Holmgren and Reveal

(1966), with the exception of the genera *Heterotheca*, *Solidago*, and *Chrysothamnus*, where the nomenclature of Welsh and Moore (1973) was employed.

Welsh, Atwood, and Murdock (1978) cited numerous collections from Bryce Canyon. Some species listed were not located in the field by the present authors. These are included in the checklist and are listed as follows:

Erigeron abajoensis Cronq.
E. compositus Pursh
E. vagus Pays.
Leucelene ericoides (Torr.) Greene
Physaria newberryi Gray
Thelypodium sagittatum (Nutt.) Endl. var. *ovalifolium* (Rydb.) Welsh and Reveal
Arenaria nuttallii S. Wats.
Carex eleocharis L. H. Bailey
Lathyrus brachycalyx Rydb. var. *zionis* (C. L. Hitchc.) Welsh
Lupinus X alpestris A. Nels.
Linanthastrum nuttallii (Gray) Ewan
Phlox hoodii Richards
Polemonium viscosum Nutt.

Due to the local edaphic and topographic features, the Bryce Canyon flora is rich in rare and endemic plants. The following list includes those plants cited by Welsh (1979) whose presence in Bryce Canyon has been documented by the authors, or, in the case of *Erigeron abajoensis*, other investigators.

Erigeron abajoensis Cronq.
Heterotheca jonesii (Blake) Welsh and Atwood

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Townsendia minima Eastw.
Cryptantha ochroleuca Higgins
Draba subalpina Goodm. and Hitchc.
Lesquerella rubicundula Rollins
Silene petersonii Maguire var. *minor* C. L. Hitchc. & Maguire
Psoralea pariensis Welsh & Atwood
Castilleja revealii N. Holmgren
Penstemon bracteatus Keck.

Erigeron abajoensis was cited by Welsh et al. (1978). We have not seen it in the field. According to Welsh (1979), *Heterotheca jonesii* was known from one surviving population. The Bryce Canyon collection (Graybosch, 924) is, therefore, a significant extension of the range of this rare plant. One population was located on a sandy outcrop of the Kaiparowits formation in Bridge Canyon at an elevation of 2438 m (8000 ft). Identical habitat is available throughout the southern half of the park; yet no other populations have been located. The site is traversed by a hiking trail, presenting the danger of trampling.

Townsendia minima, *Draba subalpina*, and *Lesquerella rubicundula* are common wherever exposed limestone exists. Their "threatened or endangered" status might need reconsideration. *Cryptantha ochroleuca* has been observed near East Creek, Inspiration Point, and below Bryce Point. Populations are small and Welsh's (1979) suggestion that the species be regarded as endangered is certainly justifiable. *Psoralea pariensis* is represented only by a few small, scattered populations along the rim of the Paunsaugunt Plateau.

Silene petersonii var. *minor* and *Penstemon bracteatus* are known in the park only from the main amphitheater (herein defined as that portion of the park bordered by Bryce Point on the south, Tropic and Little Henderson Canyons on the north, and from the rim of the Paunsaugunt Plateau to the interface of the Wasatch formation with the underlying Kaiparowits formation) and from outcrops of the Wasatch limestone bordering East Creek. Populations consist of only a few scattered individuals. *Castilleja revealii* is the rarest of these plants, known only from the main amphitheater. Maintenance of the few populations is critical because, according to Welsh (1979), the Reveal paintbrush is known only from Bryce Canyon.

Cymopterus minimus, *Phlox gladiformis*, and *Eriogonum aretioides* are rare plants known from areas close to Bryce Canyon (Cedar Breaks and/or Red Canyon). Since these sites are similar to Bryce Canyon both edaphically and topographically, one might expect to find these species in Bryce Canyon. Despite extensive search, they have not been located in the Park, thereby making protection of the existing populations all the more vital.

In the paper "The Flora of Great Basin Mountain Ranges: Diversity, Sources, and Dispersal Ecology" the flora of Bryce Canyon, based on a 1971 checklist of the national park, was used as a "continental" flora. Of all the continental floras used in the paper, that of Bryce Canyon was considered the most depauperate. The equation: no. of species = $295.4 (\log \text{area})^{0.11}$ predicted 460 species for Bryce Canyon with 55.06 square miles of area, but only 218 species were reported. This new checklist includes 446 species, which closely approximates the predicted number of species.

THE VASCULAR PLANTS OF BRYCE CANYON NATIONAL PARK

Aceraceae

1. *Acer glabrum* Torr. (Rocky Mountain maple).
2. *A. grandidentatum* Nutt. (bigtoothed maple).

Amaranthaceae

3. *Amaranthus graecizans* L. (tumbleweed amaranth).

Anacardiaceae

4. *Rhus trilobata* Nutt. (squawbush).

Apiaceae

5. *Cicuta douglasii* (DC.) Coult. & Rose (Douglas water hemlock).
6. *Cymopterus purpureus* S. Wats. (purple biscuit-root).
7. *Ligusticum porteri* Coult. & Rose (ligusticum).
8. *Lomatium minimum* Mathias (Bryce Canyon lomatium).
9. *Lomatium nuttallii* (Gray) Macbr. (desert parsley).
10. *Cymopterus lemmonii* (Coult. & Rose) Dom. (pseudocymopterus).

Apocynaceae

11. *Apocynum androsaemifolium* L. (dogbane).

Asclepidaceae

12. *Asclepias asperula* (Decne.) Woodson (milkweed).

Asteraceae (Compositae)

13. *Achillea millefolium* L. (yarrow).
14. *Agoseris aurantiaca* (Hook.) Greene var. *aurantiaca* (mountain dandelion).

15. *A. aurantiaca* (Hook.) Greene var. *purpurea* (Gray) Cronq. (mountain dandelion).
 16. *A. glauca* (Pursh). D. Dietr. var. *parviflora* (Nutt.) Rydb. (mountain dandelion).
 17. *Antennaria dimorpha* (Nutt.) T. & G. (low pussytoes).
 18. *A. parvifolia* Nutt. (pussytoes).
 19. *A. rosea* Greene (rose pussytoes).
 20. *A. rosulata* Rydb. (pygmy pussytoes).
 21. *Arnica chamissonis* Less. (woolly arnica).
 22. *A. cordifolia* Hook. (heartleaf arnica).
 23. *Artemisia arbuscula* Nutt. var. *nova* (A. Nels.) Cronq. (black sage).
 24. *A. carruthii* Wood (Carruth sage).
 25. *A. frigida* Willd. (fringed sage).
 26. *A. ludoviciana* Nutt. (Louisiana sage).
 27. *A. pygmaea* Gray (pygmy sage).
 28. *A. tridentata* Nutt. (big sage).
 29. *Aster chilensis* Nees (aster).
 30. *A. eatonii* (Gray) Howell (bog aster).
 31. *A. glaucodes* Blake (pale aster).
 32. *A. integrifolius* Nutt. (thickstem aster).
 33. *A. occidentalis* (Nutt.) Torr. & Gray (western aster).
 34. *Balsamorhiza sagittata* (Pursh) Nutt. (arrowleaf balsamroot).
 35. *Brickellia oblongifolia* Nutt. (bricklebrush).
 36. *Centaurea repens* L. (Russian knapweed).
 37. *Chaenactis douglasii* (Hook.) Hook. & Arn (chaenactis).
 38. *Chrysothamnus depressus* Nutt. (dwarf rabbitbrush).
 39. *C. linifolius* Greene (broadleaf rabbitbrush).
 40. *C. nauseosus* (Pall.) Britton var. *graveolens* (Nutt.) Hall (rubber rabbitbrush).
 41. *C. parryi* (Gray) Greene (Parry rabbitbrush).
 42. *C. vaseyi* (Gray) Greene (rabbitbrush).
 43. *C. viscidiflorus* (Hook.) Nutt. var. *viscidiflorus* (rabbitbrush).
 44. *Cirsium arizonicum* (Gray) Petrak (Arizona thistle).
 45. *C. canovirens* (Rydb.) Petrak (thistle).
 46. *C. nidulum* (Jones) Petrak (thistle).
 47. *C. pulchellum* (Greene) Woot. & Standl. (purple thistle).
 48. *C. undulatum* (Nutt.) Spreng (wavyleaf thistle).
 49. *Crepis intermedia* Gray (hawk's beard).
 50. *C. occidentalis* Nutt. (western hawk's beard).
 51. *C. runcinata* (James) T & G var. *glauca* (Nutt.) Babcock & Stebbins (dandelion hawk's beard).
 52. *Erigeron abajoensis* Cronq. (abajo daisy).
 53. *E. canus* Gray (fleabane).
 54. *E. compositus* Pursh (dwarf daisy).
 55. *E. divergens* T & G (spreading daisy).
 56. *E. eatoni* Gray (Eaton fleabane).
 57. *E. flagellaris* Gray (trailing fleabane).
 58. *E. pumilus* Nutt. ssp. *concinoides* Cronq. (low fleabane).
 59. *E. simplex* Greene (rock daisy).
 60. *E. speciosus* (Lindl.) DC var. *macranthus* (Nutt.) Cronq. (largeleaf fleabane).
 61. *E. ursinus* D.C. Eaton (Bear River fleabane).
 62. *Erigeron vagus* Pays. (fleabane).
 63. *Grindelia squarrosa* (Pursh) Dunal (gumweed).
 64. *Gutierrezia sarothrae* (Pursh) Britt. & Rusby (snake-weed).
 65. *Haplopappus armerioides* (Nutt.) Gray (goldenweed).
 66. *Helianthella uniflora* (Nutt.) T & G (helianthella).
 67. *Helianthus annuus* L. (sunflower).
 68. *Heterotheca jonesii* (Blake) Welsh & Atwood (Jones goldenaster).
 69. *H. villosa* (Pursh) Shinnery (goldenaster).
 70. *Hymenopappus filifolius* Hook. var. *cinereus* (Rydb.) I. M. Johnston (hymenopappus).
 71. *H. filifolius* Hook. var. *lugens* (Greene) Jeps. (hymenopappus).
 72. *Hymenoxys acaulis* (Pursh) Parker (stemless hymenoxys).
 73. *H. richardsonii* (Hook.) Cockerell (Colorado ribberweed).
 74. *Iva axillaris* Pursh (sumpweed).
 75. *Lactuca pulchella* (Pursh) DC (wild lettuce).
 76. *L. serriola* L. (prickly lettuce).
 77. *Leucclene ericoides* (Torr.) Greene (petite aster).
 78. *Lygodesmia grandiflora* (Nutt.) T. & G (rush pink).
 79. *L. spinosa* Nutt. (thorn skeletonweed).
 80. *Machaeranthera canescens* (Pursh) Gray (hoary machaeranthera).
 81. *M. grindelioides* (Nutt.) Shinnery (rayless goldenweed).
 82. *M. linearis* Greene (false aster).
 83. *Petradoria pumila* (Nutt.) Greene (rock goldenrod).
 84. *Senecio atratus* Greene (black groundsel).
 85. *S. cymbalarioides* Buek (cleftleaf groundsel).
 86. *S. multilobatus* Torr. & Gray (groundsel).
 87. *S. spartioides* T & G (broom groundsel).
 88. *Solidago spathulata* DC (mountain goldenrod).
 89. *S. missouriensis* Nutt. (Missouri goldenrod).
 90. *S. parryi* (Gray) Greene (Parry goldenrod).
 91. *S. sparsiflora* Gray (goldenrod).
 92. *Stephanomeria tenuifolia* (Torr.) Hall (wirelettuce).
 93. *Tanacetum nuttallii* T & G (rock tansy).
 94. *Taraxacum officinale* Weber (dandelion).
 95. *Tetradymia canescens* DC (horsebrush).
 96. *Townsendia excapa* (Richards) Porter (stemless townsendia).
 97. *T. incana* Nutt. (hoary townsendia).
 98. *T. minima* Eastw. (least townsendia).
 99. *Tragapogon dubius* Scop. (goatsbeard).
 100. *Verbesina encelioides* (Cav.) Benth. & Hook. (crownbeard).
 101. *Viguiera multiflora* (Nutt.) Blake (showy goldeneye).
- Berberidaceae**
102. *Berberis fremontii* Torr. (Fremont barberry).
 103. *B. repens* Lindl. (creeping barberry).
- Betulaceae**
104. *Betula occidentalis* Hook. (water birch).
- Boraginaceae**
105. *Cryptantha abata* I. M. Johnston (cryptantha or cat's eye).
 106. *C. bakeri* (Greene) Payson (cryptantha or cat's eye).
 107. *C. confertifolia* (Greene) Payson (cryptantha or cat's eye).
 108. *C. fendleri* (Gray) Greene (cryptantha or cat's eye).
 109. *C. flava* (Nels.) Payson (cryptantha or cat's eye).
 110. *C. fulvocanescens* (Gray) Payson (cryptantha or cat's eye).

111. *C. humilis* (Greene) Payson (cryptantha or cat's eye).
 112. *C. jamesii* (Torr.) Payson (cryptantha or cat's eye).
 113. *C. ochroleuca* Higgins (cryptantha or cat's eye).
 114. *C. setosissima* (Gray) Payson (cryptantha or cat's eye).
 115. *Lappula redowskii* (Hornem.) Greene (stickseed).
 116. *Lithospermum incisum* Lehm. (gromwell).
 117. *L. multiflorum* Torr. (puccoon).

Brassicaceae (Cruciferae)

118. *Arabis fendleri* (S. Wats.) Greene (rockcress).
 119. *A. holboellii* Hornem. (rockcress).
 120. *A. pendulina* Greene (rockcress).
 121. *Capsella bursa-pastoris* (L.) Medic (shepherd's purse).
 122. *Caulanthus crassicaulis* (Torr.) S. Wats. (wild cabbage).
 123. *Conringia orientalis* (L.) Dumort (haresear).
 124. *Descurainia obtusa* (Greene) O. E. Schulz (tansy mustard).
 125. *D. richardsonii* (Sweet) O. E. Schulz (tansy mustard).
 126. *D. sophia* (L.) Webb (tansy mustard).
 127. *Draba subalpina* Goodman & Hitchc. (subalpine whitlograss).
 128. *Erysimum capitatum* (Dougl.) Greene (western wallflower).
 129. *E. inconspicuum* (S. Wats.) MacMill (little wallflower).
 130. *Lepidium densiflorum* Schrad. (prairie pepperweed).
 131. *L. montanum* Nutt. (mountain pepperweed).
 132. *Lesquerella intermedia* (S. Wats.) Heller (bladderpod).
 133. *L. kingii* S. Wats. var. *parvifolia* (Maguire & Holmgren) Welsh & Reveal (bladderpod).
 134. *L. rubicundula* Rollins (Bryce bladderpod).
 135. *Malcolmia africana* (L.) R. Br. (African mustard).
 136. *Physaria chambersii* Rollins (twinpod).
 137. *P. newberryi* Gray (twinpod).
 138. *Sisymbrium linifolium* Nutt. (tumblemustard).
 139. *Stanleya pinnata* (Pursh) Britton (prince's plume).
 140. *Streptanthus cordatus* Nutt. (twistflower).
 141. *Thelypodium sagittatum* (Nutt.) Endl. var. *ovalifolium* (Rydb.) Welsh & Reveal (thelypody).
 142. *Thlaspi arvense* L. (field pennycress).

Cactaceae

143. *Opuntia erinacea* Engelm. (pricklypear).
 144. *Pediocactus simpsonii* Engelm. (echinocactus).

Campanulaceae

145. *Campanula parryi* Gray (Parry bellflower).
 146. *C. rotundifolia* L. (bluebell).

Capparidaceae

147. *Cleome lutea* Hook. (yellow beeplant).

Caprifoliaceae

148. *Sambucus coerulea* Raf. (elderberry).
 149. *Symphoricarpos oreophilous* Gray var. *utahensis* (Rydb.) A. Nels. (snowberry).

Caryophyllaceae

150. *Arenaria fendleri* A. Gray (sandwort).
 151. *A. nuttallii* Pax (sandwort).
 152. *Lychnis drummondii* (Hook.) S. Wats. (campion).

153. *Paronychia sessiliflora* Nutt. (creeping nailwort).
 154. *Silene petersonii* Maguire var. *minor* C. L. Hitchc. & Maguire (Red Canyon catchfly).
 155. *Stellaria jamesiana* Torr. (chickweed).
 156. *S. longipes* Goldie (starwort).

Celastraceae

157. *Pachistima myrsinites* (Pursh) Raf. (mountain lover).

Chenopodiaceae

158. *Atriplex canescens* (Pursh) Nutt. (four-winged saltbrush).
 159. *A. tridentata* Kuntze (saltbrush).
 160. *Chenopodium atrovirens* Rydb. (goosefoot).
 161. *C. incanum* (S. Wats.) Heller (goosefoot).
 162. *C. leptophyllum* Nutt. (slimleaf goosefoot).
 163. *Eurotia lanata* (Pursh) Moq. (winterfat).
 164. *Salsola iberica* Senner & Pau (Russian thistle).

Convolvulaceae

165. *Convolvulus arvensis* L. (field bindweed).

Cornaceae

166. *Cornus stolonifera* Michx. (redosier dogwood).

Cupressaceae

167. *Juniperus communis* L. (common juniper).
 168. *J. osteosperma* (Torr.) Little (Utah juniper).
 169. *J. scopulorum* Sarg. (Rocky Mountain juniper).

Cyperaceae

170. *Carex athrostachrya* Olney (slender-beaked sedge).
 171. *C. aurea* Nutt. (golden sedge).
 172. *C. canescens* L. (sedge).
 173. *C. douglasii* Boott (Douglas sedge).
 174. *C. eleocharis* L. H. Bailey (needleleaf sedge).
 175. *C. microptera* Mkze. (smallwing sedge).
 176. *C. nebraskensis* Dewey (Nebraska sedge).
 177. *C. oederi* Retz. (subalpine sedge).
 178. *C. praegracilis* W. Boott (sedge).
 179. *C. rossii* Boott (Ross sedge).
 180. *C. rostrata* Stokes (beaked sedge).
 181. *Eleocharis pauciflorus* (Lightf.) Link (spike-rush).
 182. *E. rostellata* (Torr.) Torr. (beaked spike-rush).
 183. *Scirpus americanus* Pers. (American bullrush).

Elaeagnaceae

184. *Shepherdia argentea* (Pursh) Nutt. (silver buffaloberry).
 185. *S. canadensis* (L.) Nutt. (russet buffaloberry).
 186. *S. rotundifolia* Parry (roundleaf buffaloberry).

Equisetaceae

187. *Equisetum arvense* L. (field horsetail).
 188. *E. laevigatum* A. Br. (smooth horsetail).

Ericaceae

189. *Arctostaphylos patula* Greene (green leaf manzanita).
 190. *A. uva-ursi* (L.) Spreng. (bearberry).

Euphorbiaceae

191. *Euphorbia fendleri* T & G (spurge).
 192. *E. hurida* Engelm. (spurge).
 193. *E. robusta* (Engelm.) Small (robust spurge).

Fabaceae

194. *Astragalus agrestis* Dougl. ex G. Don. (milkvetch).
 195. *A. amphioxys* Gray (crescent milkvetch).

196. *A. argophyllus* Nutt. ex T & G var. *panguicensis* (M. E. Jones) M. E. Jones (silverleafed milkvetch).
 197. *A. bisulcatus* (Hook.) Gray (two-grooved milkvetch).
 198. *A. calycosus* Torr. ex S. Wats. (Torrey milkvetch).
 199. *A. concallarius* Greene (lesser rushy milkvetch).
 200. *A. hallii* Gray var. *fallax* (Wats.) Barneby (Hall milkvetch).
 201. *A. humistratus* Gray var. *humivagans* (Rydb.) Barn-
 eby (ground cover milkvetch).
 202. *A. kentrophyta* Gray (kentrophyta).
 203. *A. lonchocarpus* Torr. (great rushy milkvetch).
 204. *A. megacarpus* (Nutt.) Gray (bladdery milkvetch).
 205. *A. miser* Dougl. ex Hook. (weedy milkvetch).
 206. *A. tenellus* Pursh (Pursh milkvetch).
 207. *Hedysarum boreale* Nutt. (northern sweetvetch).
 208. *Lathyrus brachycalyx* Rydb. var. *zionis* (C. L.
 Hitchc.) Welsh (sweetpea).
 209. *Lotus utahensis* Ottley (Utah trefoil).
 210. *Lupinus alpestris* A. Nels. (mountain lupine).
 211. *L. argenteus* Pursh var. *tenellus* (Dougl.) Dunn (sil-
 very lupine).
 212. *L. kingii* S. Wats. var. *kingii* (King lupine).
 213. *L. sericeus* Pursh var. *marianus* (Rydb.) Welsh
 (silky lupine).
 214. *Medicago lupulina* L. (black medic).
 215. *M. sativa* L. (alfalfa).
 216. *Melilotus officinalis* (L.) Lam. (yellow sweetclover).
 217. *Oxytropis deflexa* (Pallas) DC var. *sericea* T & G
 (locoweed).
 218. *O. jonesii* Barneby (Jones oxytrope).
 219. *O. oreophila* Gray var. *oreophila* (crazy weed).
 220. *Psoralea pariensis* Welsh & Atwood (Paria bread-
 root).
 221. *Trifolium repens* L. (white clover).
 222. *Vicia americana* Muhl. ex Willd. (American vetch).

Fagaceae

223. *Quercus gambelii* Nutt. (Gambel oak).

Gentianaceae

224. *Gentiana affinis* Criseb. (Rocky Mountain pleated
 gentian).
 225. *Gentiana amarella* L. var. *heterosepala* (Engelm.)
 Gillett (gentian).
 226. *G. dentosa* Rottb. (fringed gentian).
 227. *G. tenella* Rottb. (pygmy gentian).
 228. *Swertia radiata* (Kellogg) Kuntze (elkweed; green
 gentian).

Geraniaceae

229. *Geranium caespitosum* James (cranesbill).
 230. *G. marginale* Rydb. (wild geranium).
 231. *G. fremontii* Torr. (Fremont geranium).
 232. *G. richardsonii* Fisch. & Trautv. (Richardson gera-
 nium).

Iridaceae

233. *Iris missouriensis* Nutt. (Rocky Mountain iris).
 234. *Sisyrinchium demissum* Greene (blue-eyed grass).

Juncaceae

235. *Juncus balticus* Willd. (wire rush).
 236. *J. bufonius* L. (toad rush).
 237. *J. ensifolius* Wikstr. (Rocky Mountain rush).
 238. *J. longistylis* Torr. (rush).
 239. *J. torreyi* Coville (Torrey rush).

Juncaginaceae

240. *Triglochin maritima* L. (greater arrowgrass).
 241. *T. palustris* L. (lesser arrowgrass).

Lamiaceae (Labiatae)

242. *Hedeoma drummondii* Benth (mock pennyroyal).
 243. *Marrubium vulgare* L. (horehound).
 244. *Moldavica parviflora* (Nutt.) Britton (dragonhead).
 245. *Monarda odoratissima* Benth. (monardella).
 246. *Prunella vulgaris* L. (selfheal).

Liliaceae

247. *Allium acuminatum* Hook. (wild onion).
 248. *A. nevadensis* S. Wats. (wild onion).
 249. *Asparagus officinalis* L. (asparagus).
 250. *Calochortus nuttallii* T & G (sego lily).
 251. *Fritillaria atropurpurea* Nutt. (leopard lily).
 252. *Leucocrinum montanum* Nutt. ex Gray (star lily).
 253. *Smilacina stellata* (L.) Desf. (false Solomon's seal).
 254. *Yucca angustissima* Engelm. ex Trelease (yucca).
 255. *Y. harrimaniae* Trelease (yucca).
 256. *Zigadenus elegans* Pursh (death camas).

Linaceae

257. *Linum aristatum* Engelm. (annual flax).
 258. *L. kingii* S. Wats. (yellow flax).
 259. *L. lewisii* Pursh (blue flax).

Loasaceae

260. *Mentzelia multiflora* (Nutt.) Gray (blazing star).

Loranthaceae

261. *Arceuthobium campylopodium* Engelm. (dwarf mis-
 tletoe).
 262. *A. douglasii* Engelm. (dwarf mistletoe).
 263. *A. vaginatum* (Willd.) Presl. (dwarf mistletoe).
 264. *Phoradeudron juniperum* Engelm. (juniper mis-
 tletoe).

Malvaceae

265. *Sphaeralcea coccinea* (Nutt.) Rydb. (globemallow).
 266. *S. parvifolia* A. Nels. (globemallow).

Nyctaginaceae

267. *Abronia fragrans* Nutt. (snowball; sand verbena).
 268. *A. nana* S. Wats. (tufted sand verbena).

Onagraceae

269. *Epilobium adenocaulon* Hausskn. (willow-weed).
 270. *Gayophytum nuttallii* T & G (ground smoke).
 271. *G. racemosum* T & G (ground smoke).
 272. *Oenothera brachycarpa* Gray (giant evening prim-
 rose).
 273. *O. caespitosa* Nutt. (tufted evening primrose).
 274. *O. coronopifolia* T & G (delicate evening primrose).
 275. *O. flava* (A. Nels.) Garrett (yellow evening prim-
 rose).
 276. *O. lavandulaefolia* T & G (lavenderleaf evening
 primrose).
 277. *O. pallida* Lindl. (pale evening primrose).

Orchidaceae

278. *Corallorhiza maculata* Raf. (corallroot).
 279. *C. striata* Lindl. (striped corallroot).
 280. *Epipactis gigantea* Dougl. ex Hook. (giant hellebo-
 rine).
 281. *Habenaria sparsiflora* S. Wats. (bog orchid).

Orobanchaceae

282. *Orobanche fasciculata* Nutt. (broomrape).

Pinaceae

283. *Abies concolor* (Gord. & Glend.) Lindl. (white fir).
 284. *Picea pungens* Engelm. (blue spruce).
 285. *Pinus edulis* Engelm. (pinyon).
 286. *P. flexilis* James (limber pine).
 287. *P. longaecca* D. K. Bailey (bristlecone pine).
 288. *P. ponderosa* Laws. (ponderosa pine).
 289. *Pseudotsuga menziesii* (Mirb) Franco (Douglas-fir).

Plantaginaceae

290. *Plantago eriopoda* Torr. (redwood plantain).
 291. *P. lanceolata* L. (lanceleaf plantain).

Poaceae (Gramineae)

292. *Agropyron cristatum* (L.) Gaertn. (crested wheatgrass).
 293. *A. dasystachyum* (Hook.) Scribn. var. *dasystachyum* (thickspike wheatgrass).
 294. *A. scribneri* Vasey (Scribner wheatgrass).
 295. *A. smithii* Rydb. (Western wheatgrass).
 296. *A. spicatum* (Pursh) Scribner & Smith var. *inermis* (Scribn. & Smith) Heller (bluebunch wheatgrass).
 297. *A. trachycaulum* (Link) Malte var. *trachycaulum* (slender wheatgrass).
 298. *A. trachycaulum* (Link) Malte var. *unilaterale* (Cassidy) Malte (bearded wheatgrass).
 299. *Agrostis stolonifera* L. (redtop; bentgrass).
 300. *Aristida fendleriana* Steud. (three-awn).
 301. *Arundo donax* L. (giant reed).
 302. *Bouteloua gracilis* (HBK) Lag. ex Steud. (blue grama).
 303. *Bromus anomalous* Rupr. ex Fourn (nodding brome).
 304. *B. carinatus* Hook. & Arn (California brome).
 305. *B. ciliatus* L. (fringed brome).
 306. *B. commutatus* Schrader (hairy chess).
 307. *B. inermis* Leysser (smooth brome).
 308. *B. tectorum* L. (cheatgrass).
 309. *Calamagrostis neglecta* (Ehrh.) Gaertn., Meyer & Schreb. (subalpine reedgrass).
 310. *C. scopulorum* M. E. Jones (reedgrass).
 311. *Dactylis glomerata* L. (orchard grass).
 312. *Deschampsia cespitosa* (L.) Beauv. (hairgrass).
 313. *Elymus junceus* Fischer (Russian wildrye).
 314. *E. canadensis* L. (Canada wildrye).
 315. *E. salina* M. E. Jones (salina wildrye).
 316. *Festuca ovina* L. var. *rydbergii* St.-Yves (sheep fescue).
 317. *F. pratensis* Hud. (meadow fescue).
 318. *Glyceria striata* (Lam.) A. S. Hitchc. (fowl manna-grass).
 319. *Hilaria jamesii* (Torr.) Benth. (galleta).
 320. *Hordeum brachyantherum* Nevski (meadow barley).
 321. *H. jubatum* L. (foxtail barley).
 322. *Koeleria nitida* Nutt. (junegrass).
 323. *Muhlenbergia andina* (Nutt.) A. S. Hitchc. (foxtail muhly).
 324. *M. asperifolia* (Nees & Meyer) L. R. Parodi (scratchgrass).
 325. *M. montana* (Nutt.) A. S. Hitchc. (mountain muhly).
 326. *M. pungens* Thurber (sandhill muhly).
 327. *M. richardsonis* (Trin.) Rydb. (mat muhly).
 328. *Oryzopsis hymenoides* (Roemer & Schultes) Ricker (Indian ricegrass).
 329. *O. micrantha* (Trin. & Rupr.) Thurber (little ricegrass).

330. *Phleum pratense* L. (timothy).
 331. *Poa compressa* L. (Canada bluegrass).
 332. *P. fendleriana* (Steud.) Vasey (mutton grass).
 333. *P. nevadensis* Vasey ex Scribn. (Nevada bluegrass).
 334. *P. pratensis* L. (Kentucky bluegrass).
 335. *P. reflexa* Vasey & Scribn. (nodding bluegrass).
 336. *Sitanion hystrix* (Nutt.) J. G. Smith (squirreltail).
 337. *Sporobolus airoides* (Torr.) Torr. (alkali sacaton).
 338. *Stipa columbiana* Macoun (Columbia needlegrass).
 339. *S. comata* Trin. & Rupr. (needle-and-thread grass).
 340. *S. lettermanii* Vasey (letterman needlegrass).
 341. *X. Stiporyzopsis bloomeri* (Boland) B. L. Johnson (fool's ricegrass).

Polemoniaceae

342. *Ipomopsis aggregata* (Pursh) Spreng. (skyrocket gilia).
 343. *Gilia congesta* Hook. var. *congesta* (ballhead gilia).
 344. *Leptodactylon pungens* (Torr.) Nutt. (prickly phlox).
 345. *Linanthastrum nuttallii* (Gray) Ewan (false phlox).
 346. *Phlox austromontana* Cov. (mountain phlox).
 347. *P. condensata* (Gray) E. Nels. (creeping phlox).
 348. *P. diffusa* Benth (spreading phlox).
 349. *P. longifolia* Nutt. (longleaf phlox).
 350. *P. muscoides* Nutt. (mossy phlox).
 351. *Polemonium occidentale* Greene (Jacob's ladder).
 352. *P. viscosum* Nutt. (Jacob's ladder).

Polygonaceae

353. *Eriogonum alatum* Torr. var. *alatum* (winged buckwheat).
 354. *E. corymbosum* Benth. in DC var. *corymbosum* (shrubby buckwheat).
 355. *E. microthecum* Nutt. var. *foliosum* (T & G) Reveal (slimleaf buckwheat).
 356. *E. panguicense* (M. E. Jones) Reveal var. *panguicense* (Panguitch buckwheat).
 357. *E. racemosum* Nutt. (redroot buckwheat).
 358. *E. subreniforme* S. Wats. (kidney-leaf buckwheat).
 359. *E. umbellatum* Torr. var. *subaridum* Stokes (sul-furflowered buckwheat).
 360. *Polygonum aviculare* L. (creeping jenny).
 361. *P. douglasii* Greene var. *johnstonii* Munz (sawatch knotweed).
 362. *P. ramosissimum* Michx. (bush knotweed).
 363. *P. viviparum* L. (viviparous knotweed).
 364. *Rumex crispus* L. (curly dock).
 365. *R. trianguitivalis* (Danser) Rech. (dock).

Polypodiaceae

366. *Cheilanthes feei* T. Moore (lipfern).
 367. *Pteridium aquilinum* (L.) Kuhn (bracken fern).

Primulaceae

368. *Androsace septentrionalis* L. (rock jasmine).
 369. *Dodecatheon pulchellum* (Raf.) Merrill (shooting star).

Pyrolaceae

370. *Pyrola asarifolia* Michx. (alpine pyrola).
 371. *P. cirens* Schweigg (pyrola).
 372. *Pterospora andromedea* Nutt. (pinedrops).

Ranunculaceae

373. *Aconitum columbianum* Nutt. (monkshood).
 374. *Anemone multifida* Poir. (anemone).
 375. *Aquilegia caerulea* James (Colorado columbine).

376. *A. scopulorum* Tides. (rock columbine).
 377. *Clematis ligusticifolia* Nutt. (western virgin's bow-
 er).
 378. *C. pseudoalpina* (Kuntze) A. Nels. (Rocky Moun-
 tain clematis).
 379. *Delphinium scaposum* Greene (larkspur).
 380. *Ranunculus cymbalaria* Pursh (Rocky Mountain
 buttercup).
 381. *R. flammula* L. (creeping buttercup).
 382. *R. inamoenus* Greene (buttercup).
 383. *Thalictrum fendleri* Engelm. (meadow rue).

Rhamnaceae

384. *Ceanothus fendleri* Gray (Fendler buckbrush).
 385. *C. martinii* M. E. Jones (Martin buckbrush).

Rosaceae

386. *Amelanchier utahensis* Koehne (serviceberry).
 387. *Cercocarpus ledifolius* Nutt. (curlleaf mountain ma-
 hogany).
 388. *C. montanus* Raf. (birch-leaf mountain mahogany).
 389. *Cowania mexicana* D. Don (cliffrose).
 390. *Fallugia paradoxa* (D. Don) Endl. (apache plume).
 391. *Fragaria vesca* L. var. *bracteata* (Heller) R. J. Davis
 (wild strawberry).
 392. *Holodiscus dumosus* (Hook.) Heller (ocean spray;
 rock spirea).
 393. *Ivesia sabulosa* (M. E. Jones) Keck (ivesia).
 394. *Peraphyllum ramosissimum* Nutt. (squawapple).
 395. *Potentilla anserina* L. (silverweed cinquefoil).
 396. *P. concinna* Richards (elegant cinquefoil).
 397. *P. crinita* Gray (cinquefoil).
 398. *P. fruticosa* L. (shrubby cinquefoil).
 399. *P. gracilis* Dougl. var. *pulcherrima* (Lehm.) Fern.
 (common cinquefoil).
 400. *P. plattensis* Nutt. (Platte cinquefoil).
 401. *Prunus virginiana* L. (choke cherry).
 402. *Purshia tridentata* (Pursh) DC (bitterbrush).
 403. *Rosa nutkana* Presl. (Nutmka rose).
 404. *R. woodsii* Lindl. (wild rose).
 405. *Rubus idaeus* L. var. *sachalinensis* (Levl.) Focke
 (wild raspberry).

Rubiaceae

406. *Galium trifidum* L. (bedstraw).
 407. *Kelloggia galioides* Torr. (pseudobedstraw).

Salicaceae

408. *Populus angustifolia* James (narrowleaf cotton-
 wood).
 409. *P. fremontii* S. Wats. (Fremont cottonwood).
 410. *P. tremuloides* Michx. (quaking aspen).
 411. *Salix bebbiana* Sarg. (Bebb willow).
 412. *S. drummondiana* Barratt (Drummond willow).
 413. *S. exigua* Nutt. (sandbar willow).
 414. *S. geyeriana* Anderss. (Geyer willow).
 415. *S. lasiandra* Benth. var. *caudata* (Nutt.) Sudw. (Pa-
 cific willow).

Santalaceae

416. *Comandra pallida* A. DC (bastard toadflax).

Saxifragaceae

417. *Lithophragma tenella* Nutt. (woodland star).
 418. *Parnassia parviflora* DC (grass-of-Parnassus).
 419. *Ribes aureum* Pursh (gooseberry).
 420. *R. cereum* Dougl. (wax currant).

Scrophulariaceae

421. *Castilleja chromosa* A. Nels. (Indian paintbrush).
 422. *C. linariaefolia* Benth. (Wyoming paintbrush).
 423. *C. revealii* N. Holmgren (Reveal paintbrush).
 424. *Cordylanthus kingii* S. Wats. (birdbeak).
 425. *Mimulus guttatus* DC (monkey flower).
 426. *M. rubellus* Gray (annual monkey flower).
 427. *Orthocarpus luteus* Nutt. (yellow owllover).
 428. *O. purpureo-albus* Gray (purple-white owllover).
 429. *Pedicularis centranthera* Gray (lousewort).
 430. *Penstemon bracteata* Keck (Red Canyon beard-
 tongue).
 431. *P. bridgesii* Gray (redfish).
 432. *P. caespitosus* Nutt. (mat penstemon).
 433. *P. comarrhenus* Gray (dusty penstemon).
 434. *P. eatonii* Gray (Eaton penstemon).
 435. *P. leiophyllus* Pennell (royal blue penstemon).
 436. *P. rydbergii* A. Nels. (Rydberg penstemon).
 437. *P. utahensis* Eastwd. (Utah penstemon).
 438. *Verbascum thapsus* L. (flannel mullein).
 439. *Veronica americana* Schw. (American speedwell).

Solanaceae

440. *Solanum triflorum* Nutt. (cutleaf nightshade).

Tamaricaceae

441. *Tamarix pentandra* Pall. (tamarisk).

Valerianaceae

442. *Valeriana acutiloba* Rydb. (valerian).
 443. *V. edulis* Nutt. (edible valerian).

Verbenaceae

444. *Verbena bracteata* Lag. & Rodr. (vervain).

Violaceae

445. *Viola adunca* J. E. Smith (blue violet).
 446. *V. purpurea* Kellogg (goosefoot violet).

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